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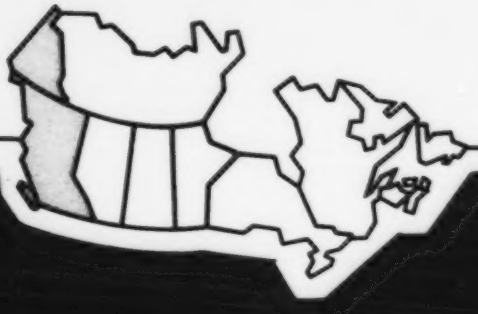
Predicting logging residues in British Columbia

A. Tunner and J.T. Standish



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Predicting logging residues in British Columbia

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Foreword

Enfor is the acronym for the Canadian Government's ENergy from the FORest (ENergie de la FORet) program of research and development aimed at securing the knowledge and technical competence to facilitate in the medium- to long term a greatly increased contribution from forest biomass to our nation's primary energy production. This program is part of a much larger federal government initiative to promote the development and use of renewable energy as a means of reducing dependence on petroleum and other nonrenewable energy sources.

The Canadian Forestry Service (CFS) administers the ENFOR Biomass Production program component which deals with such forest-oriented subjects as inventory, harvest technology, silviculture and environmental impacts. (The other component, Biomass Conversion, deals with the technology of converting biomass to energy or fuels, and is administered by the Renewable Energy Branch of the Department of Energy, Mines and Resources). Most Biomass Production projects, although developed by CFS scientists in the light of ENFOR program objectives, are carried out under contract by forestry consultants and research specialists. Contractors are selected in accordance with science procurement tendering procedures of the Department of Supply and Services. For further information on the ENFOR Biomass Production program, contact:

ENFOR Secretariat
Canadian Forestry Service
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Abstract

A computer simulation model is presented which allows the calculation of residual biomass following conventional harvesting. The model is applicable to British Columbia, and requires the user to specify the level of tree utilization and to provide forest stand data (Compartment Area Statement) available from the British Columbia Ministry of Forests. However, it can be used to give estimates for any forest stand that a user may specify. Outputs are in total tonnes by tree component (stem wood, stem bark, three size classes of branches and foliage).

Résumé

Un modèle de simulation par ordinateur permettant le calcul de la biomasse résiduelle après une récolte de type classique est présenté. Ce modèle, applicable à la Colombie-Britannique, exige que l'utilisateur indique le niveau d'utilisation des arbres et fournisse des données sur le peuplement (Compartment Area Statement), lesquelles peuvent être obtenues du ministère provincial des Forêts. Ce modèle peut être utilisé pour produire des estimations pour tout peuplement forestier décrit par l'utilisateur. Les résultats sont exprimés en tonnes totales par composante des arbres (bois de tige, écorce de la tige, trois classes de dimension des branches et feuillage).

Acknowledgements

The development of the program for this model was in large part carried out at B.C. Research, 3650 Westbrook Mall, Vancouver, B.C., by the team of Alex Tunner, Operations Research Scientist and Stanley Chow, Computer Programmer.

We would also like to thank the staff of the B.C. Ministry of Forests Inventory Branch, especially Mr. Imre Spandli. Finally, Dr. G.H. Manning and others at the Pacific Forestry Centre provided helpful editorial comments and suggestions.

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Introduction

Love (1980) has indicated the potentially great contribution of forest biomass to Canada's future energy supply; forest biomass, including logging residue, is a potentially viable energy source in British Columbia (McDaniels 1982). A prerequisite to realizing this potential is the availability of an adequate inventory of forest biomass (Bonnor 1979; Dobbs 1981).

Total forest biomass inventories are a useful statement of the total energy available on a forest site. However, in most cases the only biomass available for energy conversion is that which remains after logging for more conventional forest products. In the United States, the Forest Service is presently integrating biomass estimates with its Renewable Resources Evaluation Program (Bones 1982), from which the first biomass estimates are now available (USDA Forest Service 1981).

In Canada, no such national attempt is under way, although a national total forest biomass inventory is in preparation. The estimation of available forest residues has until now depended on after-the-fact surveys of the type developed by Warren and Olsen (1964), and amplified by Van Wagner (1968), Bailey (1969) and Brown (1974). The latter is the standard reference for inventorying logging residues for forest fuel control and has frequently been utilized for biomass measurement (e.g., Paul H. Jones and Assoc. Ltd. 1979; Blakeney 1980).

Several approaches to predicting site-specific residue weights prior to logging have been developed in the United States (Snell and Brown 1980; Brown *et al* 1979; Brown 1978; Snell *et al* 1981). The latter is the only computerized model that has been integrated in the conventional inventory.

As part of the ENFOR program's forest biomass inventory program, a model to predict residual biomass following logging to specified standards was developed for British Columbia (Standish 1983). The purpose of the model is to estimate forest biomass that is potentially available for energy conversion. Such estimates are needed for decision making in energy policy as well as more specific decisions on the need for and locations of biomass conversion plants (Dobbs 1981).

Biomass estimation model

The biomass estimation model was developed by B.C. Research and Talisman in consultation with the Inventory Branch of the B.C. Ministry of Forests. A modified mean-tree approach, as discussed by Baskerville (1965a), is used. The model applies biomass equations (Standish *et al* 1985) to the information in B.C. Ministry of Forests Stand and Stock Tables and uses a modified form of the Inventory Branch's merchantability, decay, waste and breakage factors to estimate the amount of biomass removed by logging according to specified utilization limits. Biomass removed by logging is subtracted from the standing biomass (before logging) to arrive at the residual biomass.

The basic data are specific to British Columbia and the inventory system presently in use. The Compartment was judged to be the most convenient unit for describing forest stands and for linking with the inventory system of the B.C. Ministry of Forests. Thus, the model requires access to Compartment Area Statements and associated stand and stock tables.

British Columbia is divided into 12 Forest Inventory Zones. Forest Inventory Zones are subdivided into Forest Inventory Regions and these are further subdivided into compartments. Compartments consist of a collection uniquely identified strata (types or type polygons) which describe

not only forest land but also non-forest land such as rock, open range or cultivated land.

A Compartment Area Statement is a listing of the strata in a compartment, including their areas in acres or hectares. A stratum (where it defines forest land) is defined according to tree species composition, stand age and height, stocking and site class. One or more stand and stock tables (one table for each species), showing the number of stems per hectare by Dbh class and decay risk group, are provided for each stratum. Biomass regression equations are applied to the data in the stand and stock tables to produce biomass estimates for a stratum (Standish *et al* 1985).

The biomass estimation model incorporates within it and in associated basic data files the following information:

- Biomass regression equations;
- B.C. Ministry of Forests whole-stem metric volume equations;
- B.C. Ministry of Forests merchantability, decay, waste and breakage factors.

For each tree species the three regression models were used to compute equations that are included in the Biomass Estimation Model:

(1) $y = a + b(V) + c(D, H, V) + d(D, H, V)$

(2) $y = a + b\,(D^2H)$

(3) $\log\,(y) = a + b \log\,(Dbh) + c \log\,(H)$

where D = Dbh = diameter at breast height, H = total height, V = stem volume, y = biomass and a, b, c and d are regression coefficients. Equations (1) and (2) are discussed by Standish *et al* 1985. The logarithmic equations (3) were computed but were not fully analyzed and were not corrected for downward bias; their use requires caution. In general, Equation (1) will give the most precise estimates and can be used as long as trees described in the stand data are within the size range of the sample trees used to calculate the equations. Equation (3) underestimates biomass because of the downward bias associated with logarithmic transformation. Equation (2) gives estimates of stemwood, bark and total above-ground biomass that are of nearly comparable precision as the estimates from Equation (1).

Whole stem, metric volume equations were also computed for each species from the biomass sample trees. These are not likely to be of interest to most users of the Biomass Estimation Model. However, volume estimates for each stratum described in the Compartment Area Statement appear in the Biomass Estimation Model output.

Overview of the model

Generally, the model works as follows:

- The user selects the regression equations to be used and the desired level of utilization.
- The user provides stand data (such as a Compartment Area Statement).
- The data file is read.
- The corresponding stand table is found.
- Gross and net volumes are calculated using B.C. Ministry of Forests decay, waste and breakage factors, merchantable volume factors and volume equations.
- Fresh and dry component and total above-ground biomass are calculated. The mass removed by logging and the residual mass are thus computed.
- Values are accumulated for each Dbh class in the stand and stock table, for each species and strata, and for the given compartment or region.

Output can consist of fresh and dry biomass, expressed in metric tonnes, by Dbh class, component, species, strata, compartment and, if desired, region. Values for standing biomass (before logging), biomass removed by logging at the specified utilization level and biomass remaining after logging are printed. As an option, the stand and stock tables can also be printed. The total area (in hectares) and the species in each strata are also printed.

The major components of the Biomass Estima-

tion Model are shown in the schematic diagram (Figure 1). The elements shown in the diagram are described briefly below.

Program elements

INIT1: Initializes BCFS volume equations and merchantable volume factors. Also initializes the look-up table for decay, waste and breakage factors. Reads terms and coefficients for three sets of biomass equations from file EQS.

INIT2: Initializes date, time, page numbers, line numbers and sets defaults for run parameters.

SETUP: Displays full parameter menu on the video display terminal (VDT) by calling VDTPSU and PENTER.

- VDTPSU: VDT parameter setup — writes run parameters on VDT.
- PENTER: Parameter entry — reads/writes on VDT the parameter changes for a single run.

PTRPSU: Print parameter setup — identical to VDTPSU, writes final run parameters on printer.

CAS: Reads strata names and acreage from Compartment Area Statement file CAF.

- FINDST: Checks validity of stratum "name" (see below).

If valid, accumulates acreage of similar strata in temporary file BMS.

- PTRSTRA: The strata selected and the accumulated acreage are written on printer or VDT.
- MESSAGE: Writes any warning messages on printer or VDT.

FINDST: For a given stratum name, tries to find corresponding stand and stock table in file SSF.

- TRYHT: Tries to find given height class; if not found, tries 4 classes higher and lower.
- TRYAGE: Tries to find given age class; if not found, tries 4 classes higher and lower.
- TRYAS: Tries to read indexed stand and stock file SSF.

BD1: Determines type group given the first and second species type.

SAS: Stand and stock subroutine calculates:

- CLEAR: Clears required levels of various arrays.

DCALC: Called wherever a new dbh class is read from stand and stock file. It calls:

- VOLUME: Calculates BCFS volume and merchantable volume factor.
- DWB: Calculates decay-waste-breakage for the trees involved.
- COMPO: Calculates dry and fresh component biomass weights using the appropriate set of biomass equations.

CALCS: Accumulates the biomass weights calculated in DCALC to higher levels (Dbh class, species, stratum, compartment, region).

PSAS: Prints stand and stock tables on VDT and/or printer, to the level of detail specified by the appropriate parameter in SETUP.

PBM: Print biomass volumes, amount logged, and biomass remaining following logging.

Further details of the model and output can be obtained through the senior author.

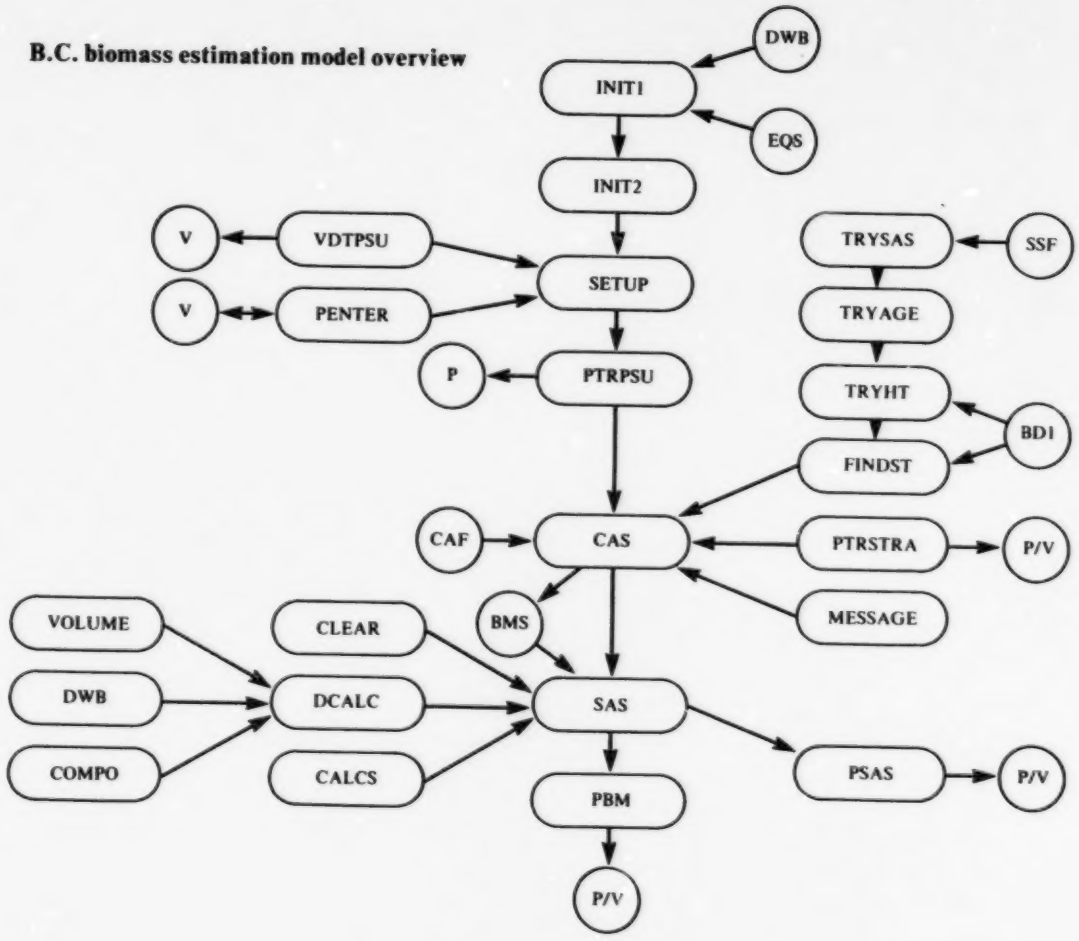


Figure 1. B.C. biomass estimation model flow chart.

Performance of the model

The model was tested using two sets of data obtained from the B.C. Ministry of Forests:

1. A large and complex coastal area: Region 9, Compartment 3 located just east of Stave Lake in the Fraser Timber Supply Area of the Vancouver Forest Region.

2. An interior area: Region 60, Compartment 156, located near Whitesail Lake in the Morice Timber Supply Area of the Prince Rupert Forest Region.

Examples of output are shown in Tables 1 and 2.

Table 1 shows the basic input parameters. These specify the equations to be used and the level of detail desired in the output. Referring to Table 1, a biomass regression model is selected (01) and a mode (02). The simple linear regression is indicated by "2" in this example; "1" corresponds to the multiple linear equations and "3" corresponds to the logarithmic equations. "Mode" (02) refers to the type of data file: B.C. Ministry of Forests inventory data in this case. A Compartment Area Summary is used in this study, so "2" is selected.

The compartment level of aggregation ("2") is selected in step 03. Printing of the stand and stock tables is requested in step 04 by entering

Table 1. INPUT PARAMETERS FOR THE BIOMASS ESTIMATION MODEL

"BIOMASS ESTIMATION MODEL"*

REGION 9 COMPARTMENT 003-0

RUN PARAMETERS	(01) BIOMASS EQUATION SET = 2	(1="COMPLEX" 2=DBH 3=LOGS)
	(02) MODE = 2	(1=INDIVIDUAL 2=BCFS INVENTORY)
STOCK & STAND REPORTING LEVEL	(03) VDT SCREEN LEVEL = 2	(1=NONE 2= COMPARTMENT 3=STRATA
	(04) PRINTER LEVEL = 5	4=SPECIES 5=DBH)
RECOVERY CRITERIA	(05) TOP DIB = 10.0cm.	
	(06) STUMP HEIGHT = 30.0cm.	
	(07) MINIMUM DBH = 25.0cm.	
	(08) SPECIES + F C H	
STAND DESCRIPTION	(09) REGION = 9	
	(10) COMPARTMENT = 003-0	

"5". Utilization levels are chosen by the use and shown in steps 05 to 07 and the species of interest (using B.C. Ministry of Forests Inventory Branch's abbreviations) are shown in step 08. Information related to the data files to be read is shown in steps 09 and 10.

Table 2 shows a portion of the output for coastal, immature hemlock-balsam stands in Compartment 3, Region 9, using the simple linear regression model for biomass prediction. The total for one stratum (number 15220) is shown. In this particular case, very little biomass is removed by logging because of the small size of most of the trees. However, it does illustrate the general format of the model output. More complete and detailed samples of output are shown in the Appendix.

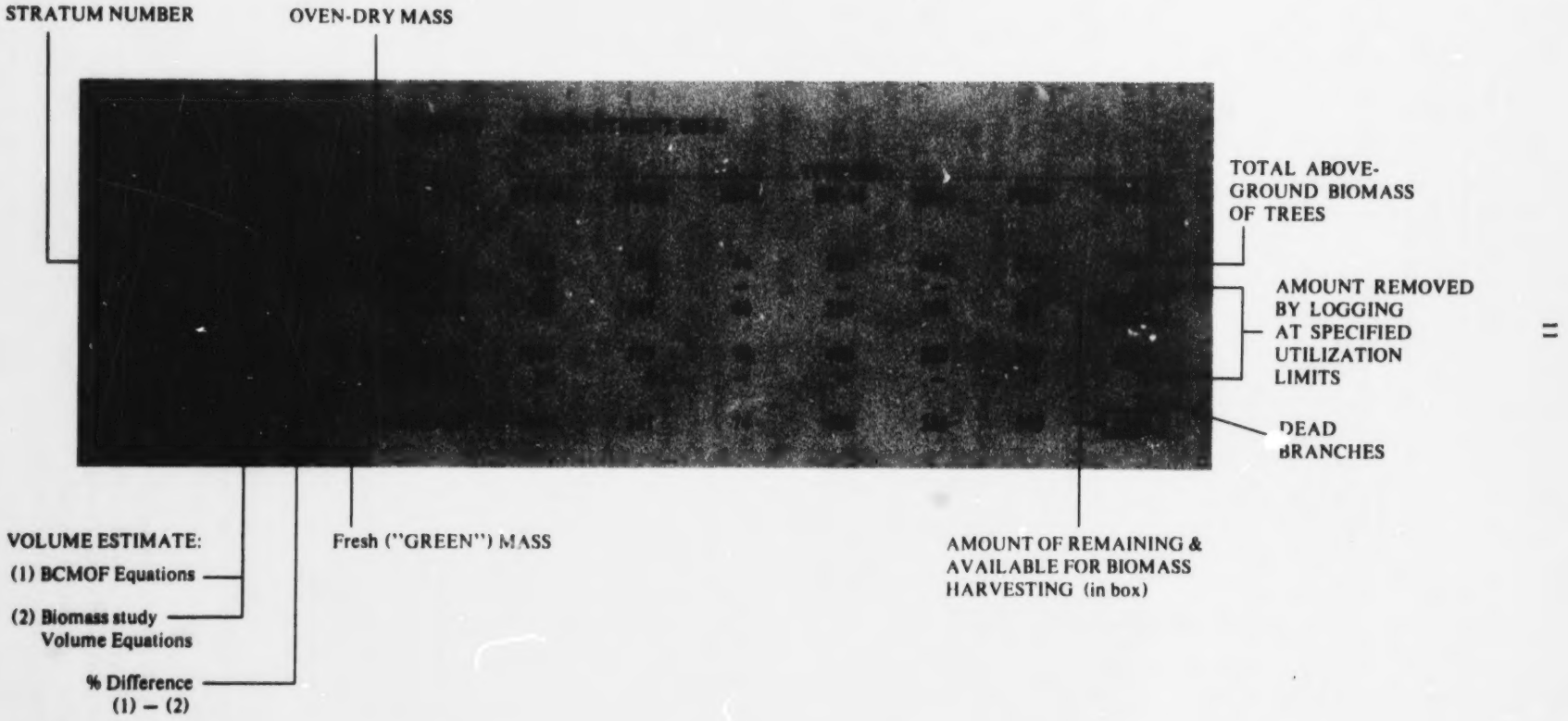
In general, the model itself seems to perform well. However, the actual predictions of biomass shown in many of the examples in the Appendix should be viewed with caution because some trees represented in the inventory data file are beyond the size range of the sample trees used for deriving the regression equations. Suitable biomass equations covering a wider range of tree sizes are not available; however, other equations can be included if they become available.

Predictions of biomass per hectare and the proportion of different components are reasonable compared to general estimates in the literature (Baskerville 1965b; Franklin 1979; Whittaker 1975) and are adequate with respect to the object of this study. Errors in forest inventory and biomass estimates are discussed by Baskerville (1965a) Cunia (1965 and 1979) and Shaw (1979). Sources of error include sampling and non-sampling errors associated with biomass regression equations, the B.C. Ministry of Forests inventory samples, and the B.C. Ministry of Forests decay, waste and breakage factors.

Sampling errors associated with the inventory data (B.C. Ministry of Forests stand tables) are not available on an individual stratum or even a compartment basis. Therefore the only estimate of sampling error available is that associated with the regression equations (e.g., 95% confidence limits).

As a final caution, recoverable biomass in any given situation may be considerably less than predictions based on models such as those described here. For example, Blakeney (1980) shows that 67% to 94% of inventoried, downed, woody material was recovered during trials at two sites on Vancouver Island.

Table 2. EXAMPLE OF THE OUTPUT OF THE BIOMASS ESTIMATION MODEL


STRATUM NUMBER
OVEN-DRY MASS
TOTAL ABOVE-GROUND BIOMASS OF TREES
AMOUNT REMOVED BY LOGGING AT SPECIFIED UTILIZATION LIMITS
=
DEAD BRANCHES
VOLUME ESTIMATE:
(1) BCMOF Equations
(2) Biomass study Volume Equations
% Difference (1) – (2)
Fresh ("GREEN") MASS
AMOUNT OF REMAINING & AVAILABLE FOR BIOMASS HARVESTING (in box)

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Appendix

A-1

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** BIOMASS ESTIMATION MODEL ***                5-APR-83   19:10:26    PAGE    1

                  ---->  REGION  9   COMPARTMENT 003-0                  |
                                                                        v

RUN                (01) BIOMASS EQUATION SET=2     (1="COMPLEX" 2=DDH 3=LOGS)
PARAMETERS         (02) MODE=2                     (1=INDIVIDUAL  2=BCFS INVENTORY)

STOCK & STAND      (03) VDT SCREEN LEVEL=2         (1=NONE 2=COMPARTMENT 3=STRATA
REPORTING LEVEL    (04) PRINTER LEVEL=5              4=SPECIES 5=DBH)

RECOVERY           (05) TOP DIB= 10 0cm
CRITERIA           (06) STUMP HEIGHT= 30 0cm
                   (07) MINIMUM DBH= 25 0cm

                   (08) SPECIES= F  C  H

STAND              (09) REGION= 9
DESCRIPTION        (10) COMPARTMENT=003-0
```

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STAND DESCRIPTION. REGION 9 COMPARTMENT 003-0

STRATA	1220	2220	2320	2330	2640	2851	3220
HECTARES	347.2	2 8	2 8	24 7	43 7	0 4	6 9
SPECIES	F	F C Mb	F C H	F C H	F C H	F C H	F C H
STRATA	3640	3650	3831	8440	9831	10630	10640
HECTARES	36 8	4 0	5 3	11 3	8 9	80 9	15 0
SPECIES	F C H	F C H	F H	F C H	C H Cy	F C H	F C H
STRATA	10941	10951	11530	11841	11931	11941	11951
HECTARES	21 0	14 2	4 5	0 8	84 6	320 9	613 1
SPECIES	F C H	F C H	C H	F C H	C H Cy	F C H	C H B
STRATA	12420	13220	13530	13831	14220	14630	14831
HECTARES	17 4	4 9	10 5	19 4	53 4	13 4	9 3
SPECIES	F C H	F C H	F C H	F C H	F C H	F C H	C H Cy
STRATA	14851	14931	14941	14951	15220	15540	15931
HECTARES	0 4	64 3	432 2	159 0	10 9	0 8	38 0
SPECIES	C H	H B Cy	C H B	C H B	C H B	H B	H B Cy
STRATA	15941	15951	15961	17220	18941	19931	19941
HECTARES	295 4	202 7	1 2	6 5	6 1	110 5	291 8
SPECIES	C H B	C H B	H B	H D B_1	B	H B Cy	H B Cy
STRATA	19951	19961					
HECTARES	547 5	19 8					
SPECIES	C H B	C H B					

A-3

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STAND & STOCK DATA — STEMS PER HECTARE BY DECAY RISK GROUP

	DBH	HGHT	SVOL	GR-1	GR-2	GR-3	VETR	POTL	USLS	TOTAL
1220										
1 F	10 0	9 2	17 1	536 2	0 0	0 0	0 0	1 2	3 5	540 9
	15 0	12 4	30 7	335 8	0 0	0 0	0 0	0 0	5 2	340 9
	20 0	15 8	29 1	149 2	0 0	0 0	0 0	0 0	0 0	149 2
	25 0	18 6	18 7	54 0	0 0	0 0	0 0	0 0	0 0	54 0
	30 0	21 1	8 3	15 0	0 0	0 0	0 0	0 0	0 0	15 0
	35 0	22 7	2 0	1 7	0 0	0 0	0 6	0 0	0 3	2 6
	40 0	25 9	2 0	1 5	0 0	0 0	0 0	0 0	0 3	1 8
	45 0	24 7	0 4	0 0	0 0	0 0	0 0	0 0	0 3	0 3
	50 0	25 2	2 0	0 0	0 0	0 0	0 6	0 0	0 6	1 2
	55 0	25 2	1 2	0 0	0 0	0 0	0 0	0 0	0 6	0 6
	60 0	28 7	0 8	0 0	0 0	0 0	0 0	0 0	0 3	0 3
	70 0	31 7	1 1	0 0	0 0	0 0	0 0	0 0	0 3	0 3
	80 0	30 0	4 1	0 0	0 0	0 0	0 0	0 3	0 6	0 9
	100 0	27 8	5 7	0 0	0 0	0 0	0 0	0 0	0 9	0 9
	115 0	26 8	2 3	0 0	0 0	0 0	0 0	0 0	0 3	0 3
1 F	SPECIES TOTAL		125 6	1093 4	0 0	0 0	1 2	1 5	13 1	1109 1
1220										
2 C	10 0	8 2	1 3	35 0	3 5	0 0	0 0	0 6	0 0	39 1
	15 0	11 6	0 8	6 5	0 0	0 0	0 0	0 6	1 2	8 2
	20 0	15 3	0 4	0 0	0 0	0 0	0 0	0 0	1 8	1 8
	25 0	17 3	0 3	0 0	0 0	0 0	0 0	0 3	0 6	0 9
	30 0	15 2	0 1	0 3	0 0	0 0	0 0	0 0	0 0	0 3
	35 0	18 9	0 2	0 0	0 0	0 0	0 0	0 3	0 0	0 3
	40 0	20 4	0 6	0 0	0 0	0 0	0 0	0 3	0 3	0 6
	60 0	23 8	0 7	0 0	0 0	0 0	0 0	0 0	0 3	0 3
	65 0	24 1	1 6	0 0	0 0	0 0	0 0	0 0	0 6	0 6
	70 0	22 3	0 8	0 0	0 0	0 0	0 0	0 0	0 3	0 3
	75 0	24 1	1 0	0 0	0 0	0 0	0 0	0 0	0 3	0 3
	100 0	22 3	1 5	0 0	0 0	0 0	0 0	0 0	0 3	0 3
2 C	SPECIES TOTAL		9 2	41 8	3 5	0 0	0 0	2 0	5 6	52 9
1220										
3 H	10 0	8 2	4 1	113 0	29 4	0 0	0 0	0 0	0 0	142 4
	15 0	11 3	2 6	24 1	6 5	0 0	0 0	0 0	0 0	30 6
	20 0	12 7	0 7	0 6	2 9	0 0	0 6	0 0	0 0	4 1
	30 0	12 5	0 1	0 0	0 0	0 0	0 3	0 0	0 0	0 3
	35 0	15 5	1 0	0 6	0 3	0 0	0 9	0 0	0 0	1 8
	40 0	14 7	0 4	0 0	0 0	0 0	0 3	0 0	0 3	0 6
3 H	SPECIES TOTAL		9 0	138 3	39 1	0 0	2 0	0 0	0 3	179 7

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STAND & STOCK DATA: STEMS PER HECTARE BY DECAY RISK GROUP

	DBH	HGHT	SVOL	GR-1	GR-2	GR-3	VETR	POTL	USLS	TOTAL
1220										
4 S	10.0	6.7	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
4 S	SPECIES TOTAL		0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
1220										
5 Pl	10.0	9.4	0.1	1.2	1.8	0.0	0.0	0.0	0.0	3.0
	15.0	11.5	0.5	2.9	1.2	0.0	0.0	0.0	1.2	5.3
	20.0	12.5	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.6
5 Pl	SPECIES TOTAL		0.7	4.7	3.0	0.0	0.0	0.0	1.2	8.8
1220										
6 Co	10.0	8.8	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
	15.0	15.5	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.6
	30.0	22.3	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.3
6 Co	SPECIES TOTAL		0.2	1.5	0.0	0.0	0.0	0.0	0.0	1.5
1220										
7 D	10.0	7.6	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6
	15.0	13.1	0.5	4.7	0.0	0.0	0.0	0.0	0.0	4.7
	20.0	18.0	0.6	1.2	0.0	0.0	0.0	0.0	1.2	2.4
	25.0	19.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.3
	30.0	14.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.3
7 D	SPECIES TOTAL		1.3	7.1	0.0	0.0	0.0	0.0	1.2	8.2
1220										
8 Mb	10.0	11.9	0.1	2.9	0.0	0.0	0.0	0.0	0.0	2.9
	15.0	15.2	0.4	4.1	0.0	0.0	0.0	0.0	0.0	4.1
	20.0	18.2	0.3	1.2	0.0	0.0	0.0	0.0	0.0	1.2
8 Mb	SPECIES TOTAL		0.8	8.2	0.0	0.0	0.0	0.0	0.0	8.2
1220										
9 Bi	10.0	12.1	1.5	37.8	0.0	0.0	0.0	0.0	0.0	37.8
	15.0	14.9	1.8	16.5	0.0	0.0	0.0	0.0	0.0	16.5
	20.0	16.2	0.2	1.2	0.0	0.0	0.0	0.0	0.0	1.2
	25.0	17.1	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.5
9 Bi	SPECIES TOTAL		3.7	56.0	0.0	0.0	0.0	0.0	0.0	56.0
1220	STRATUM TOTAL		150.5	1351.2	45.6	0.0	3.2	3.5	21.3	1424.8

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STAND & STOCK DATA: STEMS PER HECTARE BY DECAY RISK GROUP

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	DBH	HGHT	SVOL	GR-1	GR-2	GR-3	VETR	POTL	USLS	TOTAL
19961										
1 C	10.0	8.0	0.1	0.0	2.5	0.0	0.0	0.0	0.0	2.5
	20.0	14.7	0.2	0.8	0.0	0.0	0.0	0.0	0.0	0.8
	25.0	18.3	0.3	0.0	0.8	0.0	0.0	0.0	0.0	0.8
	35.0	23.4	0.7	0.0	0.8	0.0	0.0	0.0	0.0	0.8
	105.0	39.1	7.9	0.0	0.0	0.0	0.0	0.8	0.0	0.8
	175.0	48.4	23.7	0.0	0.8	0.0	0.0	0.0	0.0	0.8
1 C	SPECIES TOTAL		32.9	0.8	4.9	0.0	0.0	0.8	0.0	6.6
19961										
2 H	10.0	8.6	0.5	11.1	4.9	0.0	0.0	0.0	0.0	16.1
	15.0	12.3	1.3	4.1	7.4	0.0	0.0	0.0	1.6	13.2
	20.0	16.1	1.4	3.3	2.5	0.0	0.0	0.0	0.8	6.6
	25.0	19.8	3.5	3.7	4.9	0.0	0.0	0.0	0.0	8.7
	30.0	23.0	1.2	1.0	0.0	0.0	0.0	0.0	0.8	1.9
	35.0	25.5	4.0	3.3	0.8	0.0	0.0	0.0	0.0	4.1
	40.0	28.4	7.2	2.7	2.5	0.0	0.0	0.0	0.0	5.2
	45.0	31.1	7.9	1.6	2.5	0.0	0.0	0.0	0.0	4.1
	50.0	32.7	12.1	2.5	1.6	0.0	0.0	0.0	0.8	4.9
	55.0	34.3	12.6	0.0	4.1	0.0	0.0	0.0	0.0	4.1
	60.0	34.7	5.9	0.8	0.8	0.0	0.0	0.0	0.0	1.6
	65.0	36.1	4.5	0.0	1.0	0.0	0.0	0.0	0.0	1.0
	70.0	37.3	12.7	0.8	0.0	0.8	0.0	0.0	0.8	2.5
	75.0	37.7	4.9	0.8	0.0	0.0	0.0	0.0	0.0	0.8
	80.0	39.4	17.2	0.8	1.6	0.0	0.0	0.0	0.0	2.5
	85.0	40.0	40.8	1.6	2.7	0.0	0.0	0.0	0.8	5.2
	90.0	40.5	16.4	0.0	1.0	0.8	0.0	0.0	0.0	1.9
	95.0	41.6	18.7	0.0	1.9	0.0	0.0	0.0	0.0	1.9
	100.0	43.3	28.4	0.8	0.8	0.0	0.0	0.0	0.8	2.5
	105.0	43.6	10.4	0.0	0.8	0.0	0.0	0.0	0.0	0.8
	110.0	43.2	14.1	0.0	0.0	0.0	0.0	0.0	1.0	1.0
	115.0	43.3	36.6	0.8	1.6	0.0	0.0	0.0	0.0	2.5
	120.0	43.6	26.4	0.0	0.8	0.0	0.0	0.0	0.8	1.6
	125.0	47.7	15.7	0.0	0.0	0.0	0.0	0.0	0.8	0.8
	130.0	46.2	32.5	0.8	0.0	0.8	0.0	0.0	0.0	1.6
	135.0	46.6	57.4	1.6	1.0	0.0	0.0	0.0	0.0	2.7
	145.0	44.9	19.1	0.0	0.0	0.8	0.0	0.0	0.0	0.8
	175.0	41.4	24.4	0.0	0.8	0.0	0.0	0.0	0.0	0.8
2 H	SPECIES TOTAL		438.2	42.4	46.3	3.3	0.0	0.0	9.2	101.2
19961										
3 B	10.0	7.1	3.8	104.2	25.1	0.0	0.0	0.8	3.7	133.8

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STAND & STOCK DATA STEMS PER HECTARE BY DECAY RISK GROUP

		DBH	HGHT	SVOL	GR-1	GR-2	GR-3	VETR	POTL	USLS	TOTAL
19961											
3 B		15 0	10 4	5 1	39 9	14 8	0 0	0 0	0 0	1 6	56 4
		20 0	14 1	7 2	24 3	9 9	0 0	0 0	0 0	0 0	34 2
		25 0	17 7	9 8	16 9	4 3	0 8	0 0	0 8	1 6	24 5
		30 0	21 4	16 6	16 1	5 8	0 8	0 0	1 6	0 0	24 3
		35 0	24 2	12 1	6 8	4 1	0 0	0 0	0 0	0 8	11 7
		40 0	27 1	17 1	7 2	3 3	0 0	0 0	0 0	1 0	11 5
		45 0	30 2	20 4	5 8	2 5	0 0	0 0	0 0	1 6	9 9
		50 0	33 0	15 8	3 3	2 5	0 0	0 0	0 0	0 0	5 8
		55 0	34 8	14 2	0 8	2 5	0 8	0 0	0 0	0 0	4 1
		60 0	37 4	22 5	2 7	1 6	0 0	0 0	0 8	0 0	5 2
		65 0	39 8	63 4	4 1	4 1	0 0	0 0	0 8	2 7	11 7
		70 0	41 0	31 4	0 8	2 5	0 0	0 0	0 0	1 6	4 9
		75 0	42 7	13 9	0 8	0 0	0 0	0 0	0 0	1 0	1 9
		80 0	44 5	52 7	3 5	0 0	0 8	0 0	0 8	0 8	6 0
		85 0	45 6	43 7	1 6	1 9	0 8	0 0	0 0	0 0	4 3
		90 0	47 8	29 1	1 6	0 8	0 0	0 0	0 0	0 0	2 5
		95 0	49 1	93 7	1 6	1 6	0 8	0 0	0 8	2 1	7 0
		100 0	48 8	77 9	1 6	2 9	0 8	0 0	0 0	0 0	5 4
		105 0	50 8	82 1	2 5	1 6	0 0	0 0	0 0	0 8	4 9
		110 0	52 5	46 2	0 8	1 6	0 0	0 0	0 0	0 0	2 5
		115 0	53 1	67 5	0 8	0 0	0 0	0 0	0 0	2 5	3 3
		125 0	49 3	36 0	0 8	0 0	0 0	0 0	0 0	0 8	1 6
		130 0	54 5	21 5	0 0	0 0	0 0	0 0	0 0	0 8	0 8
3 B	SPECIES TOTAL			804 0	248 7	93 5	5 7	0 0	6 6	23 7	378 2
19961	STRATUM TOTAL			1275 1	291 9	144 7	9 0	0 0	7 4	32 9	486 0
	COMPARTMENT TOTAL			33748 5	29609 0	11260 4	397 9	95 6	240 3	3114 2	44717 4

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	STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
1220 BCF	43594	DRY	BIOMASS	19959	3469	1399	3770	1414	4547	34556
1 F BEM	45171		LOGGED	4141	625	-	-	-	-	4765
%DIF	3.6		RESIDUE	15818	2844	1399	3770	1414	4547	29790
		GRN	BIOMASS	42011	7961	2219	7646	3129	10095	73062
			LOGGED	7620	1248	-	-	-	-	8868
									DEAD	758
			RESIDUE	34391	6713	2219	7646	3129	10095	64952
1220 BCF	3197	DRY	BIOMASS	1093	162	100	193	72	215	1834
2 C BEM	3247		LOGGED	54	7	-	-	-	-	62
%DIF	1.5		RESIDUE	1038	155	100	193	72	215	1772
		GRN	BIOMASS	2203	341	171	354	178	450	3696
			LOGGED	103	15	-	-	-	-	118
									DEAD	39
			RESIDUE	2100	325	171	354	178	450	3617
1220 BCF	3108	DRY	BIOMASS	1484	331	118	545	285	537	3299
3 H BEM	3363		LOGGED	174	24	-	-	-	-	198
%DIF	8.2		RESIDUE	1309	307	118	545	285	537	3101
		GRN	BIOMASS	3115	742	187	989	619	1179	6831
			LOGGED	348	42	-	-	-	-	390
									DEAD	227
			RESIDUE	2767	700	187	989	619	1179	6667
1220 BCF	2	DRY	BIOMASS	1	0	0	1	0	1	3
4 S BEM	1		LOGGED	0	0	-	-	-	-	0
%DIF	-61.1		RESIDUE	1	0	0	1	0	1	3
		GRN	BIOMASS	2	1	0	1	1	2	6
			LOGGED	0	0	-	-	-	-	0
									DEAD	0
			RESIDUE	2	1	0	1	1	2	7
1220 BCF	243	DRY	BIOMASS	147	16	5	23	5	20	215
5 P1 BEM	286		LOGGED	0	0	-	-	-	-	0
%DIF	17.3		RESIDUE	147	16	5	23	5	20	215
		GRN	BIOMASS	293	41	9	46	10	39	437
			LOGGED	0	0	-	-	-	-	0
									DEAD	10
			RESIDUE	293	41	9	46	10	39	448

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		STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
1220	BCF	81	DRY	BIOMASS	30	5	2	9	1	3	49
6 Co	BEM	108		LOGGED	0	0	-	-	-	-	0
	%DIF	33 4		RESIDUE	30	5	2	9	1	3	49
			GRN	BIOMASS	61	12	4	16	1	5	99
				LOGGED	0	0	-	-	-	-	0
										DEAD	1
				RESIDUE	61	12	4	16	1	5	100
1220	BCF	460	DRY	BIOMASS	200	29	17	30	6	9	289
7 D	BEM	456		LOGGED	0	0	-	-	-	-	0
	%DIF	-0 9		RESIDUE	200	29	17	30	6	9	289
			GRN	BIOMASS	377	53	30	57	13	22	551
				LOGGED	0	0	-	-	-	-	0
										DEAD	10
				RESIDUE	377	53	30	57	13	22	561
1220	BCF	235	DRY	BIOMASS	132	18	12	26	5	8	201
8 Mb	BEM	307		LOGGED	0	0	-	-	-	-	0
	%DIF	7 6		RESIDUE	132	18	12	26	5	8	201
			GRN	BIOMASS	251	36	22	49	11	21	390
				LOGGED	0	0	-	-	-	-	0
										DEAD	6
				RESIDUE	251	36	22	49	11	21	396
1220	BCF	1292	DRY	BIOMASS	625	91	19	109	37	62	944
9 Bi	BEM	1217		LOGGED	0	0	-	-	-	-	0
	%DIF	-5 8		RESIDUE	625	91	19	109	37	62	944
			GRN	BIOMASS	1011	175	35	177	69	107	1574
				LOGGED	0	0	-	-	-	-	0
										DEAD	11
				RESIDUE	1011	175	35	177	69	107	1585
1220	BCF	52263	DRY	BIOMASS	23670	4121	1672	4703	1824	5400	41391
STRAT	BEM	54155		LOGGED	4369	656	-	-	-	-	5026
TOTAL	%DIF	3 6		RESIDUE	19301	3465	1672	4703	1824	5400	36365
			GRN	BIOMASS	49323	9361	2676	9336	4031	11920	86647
				LOGGED	8070	1305	-	-	-	-	9376
										DEAD	1062
				RESIDUE	41253	8056	2676	9336	4031	11920	78333

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		STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
19951	BCF	22216	DRY	BIOMASS	14244	844	286	503	97	581	16554
4 Cy	BEM	32694		LOGGED	0	0	-	-	-	-	0
	%DIF	47.2		RESIDUE	14244	844	286	503	97	581	16554
			GRN	BIOMASS	21638	1605	495	837	170	1019	25764
				LOGGED	0	0	-	-	-	-	0
										DEAD	117
				RESIDUE	21638	1605	495	837	170	1019	25881
19951	BCF	573	DRY	BIOMASS	223	21	12	14	7	13	290
5 Pw	BEM	555		LOGGED	0	0	-	-	-	-	0
	%DIF	-3 1		RESIDUE	223	21	12	14	7	13	290
			GRN	BIOMASS	409	52	17	26	15	27	546
				LOGGED	0	0	-	-	-	-	0
										DEAD	5
				RESIDUE	409	52	17	26	15	27	550
19951	BCF	628488	DRY	BIOMASS	262843	32984	11941	19489	8244	31353	366854
STRAT	BEM	649871		LOGGED	50628	6621	-	-	-	-	57249
TOTAL	%DIF	3 4		RESIDUE	212216	26363	11941	19489	8244	31353	309606
			GRN	BIOMASS	548389	63155	22839	38141	16914	64051	753487
				LOGGED	99759	11170	-	-	-	-	110929
										DEAD	2713
				RESIDUE	448630	51984	22839	38141	16914	64051	645272
19961	BCF	652	DRY	BIOMASS	221	29	20	19	4	22	314
1 C	BEM	733		LOGGED	92	12	-	-	-	-	104
	%DIF	12 5		RESIDUE	128	17	20	19	4	22	210
			GRN	BIOMASS	399	58	33	35	9	54	588
				LOGGED	167	24	-	-	-	-	191
										DEAD	10
				RESIDUE	232	34	33	35	9	54	407
19961	BCF	8690	DRY	BIOMASS	4047	528	193	144	91	155	5160
2 H	BEM	9196		LOGGED	2014	263	-	-	-	-	2276
	%DIF	5 8		RESIDUE	2034	266	193	144	91	155	2884
			GRN	BIOMASS	8048	872	370	257	195	334	10077
				LOGGED	4004	433	-	-	-	-	4436
										DEAD	33
				RESIDUE	4045	439	370	257	195	334	5674

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	STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
19961	BCF 15943	DRY	BIOMASS	6367	812	271	671	261	1210	9592
3 8	BEM 16443		LOGGED	0	0	-	-	-	-	0
	%DIF 3 1		RESIDUE	6367	812	271	671	261	1210	9592
		GRN	BIOMASS	14287	1716	534	1355	522	2439	20854
			LOGGED	0	0	-	-	-	-	0
									DEAD	54
			RESIDUE	14287	1716	534	1355	522	2439	20908
19961	BCF 25284	DRY	BIOMASS	10635	1370	485	834	355	1388	15066
STRAT	BEM 26372		LOGGED	2106	275	-	-	-	-	2381
TOTAL	%DIF 4 3		RESIDUE	8529	1095	485	834	355	1388	12686
		GRN	BIOMASS	22734	2647	937	1648	726	2826	31519
			LOGGED	4170	457	-	-	-	-	4627
									DEAD	97
			RESIDUE	18564	2189	937	1648	726	2826	26989
	BCF 3905217	DRY	BIOMASS	1673244	199760	80307	109883	43295	152441	2258929
COMP	BEM 4152640		LOGGED	505133	66980	-	-	-	-	572113
TOTAL	%DIF 6 3		RESIDUE	1168111	132779	80307	109883	43295	152441	1686816
		GRN	BIOMASS	3237703	375394	146589	208164	91302	319126	4378280
			LOGGED	973160	117899	-	-	-	-	1091059
									DEAD	26294
			RESIDUE	2264544	257495	146589	208164	91302	319126	3313515

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** BIOMASS ESTIMATION MODEL ***                12-APR-83   14:44:50    PAGE     1

                  ---->  REGION  9   COMPARTMENT 003-0        |
                                                              v

RUN                 (01) BIOMASS EQUATION SET=1     (1="COMPLEX" 2=DDH 3=LOGS)
PARAMETERS          (02) MODE=2                     (1=INDIVIDUAL  2=BCFS INVENTORY)

STOCK & STAND       (03) VDT SCREEN LEVEL=2         (1=NONE 2=COMPARTMENT 3=STRATA
REPORTING LEVEL     (04) PRINTER LEVEL=2              4=SPECIES 5=DBH)

RECOVERY            (05) TOP DIB= 10.0cm
CRITERIA            (06) STUMP HEIGHT= 30.0cm
                    (07) MINIMUM DBH= 25.0cm

                    (08) SPECIES= F  C  H

STAND               (09) REGION= 9
DESCRIPTION         (10) COMPARTMENT=003-0
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	STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
1220 BCF	43594	DRY	BIOMASS	18697	3203	1579	3147	1139	3585	31350
1 F BEM	39952		LOGGED	4445	702	-	-	-	-	5147
%DIF	-8 4		RESIDUE	14252	2501	1579	3147	1139	3585	26203
		GRN	BIOMASS	37246	7226	2702	6400	2616	8267	64455
			LOGGED	9267	1495	-	-	-	-	10762
									DEAD	724
			RESIDUE	27978	5730	2702	6400	2616	8267	54416
1220 BCF	3197	DRY	BIOMASS	1114	161	130	146	56	139	1746
2 C BEM	3003		LOGGED	56	8	-	-	-	-	64
%DIF	-6 1		RESIDUE	1058	153	130	146	56	139	1683
		GRN	BIOMASS	2185	349	223	275	143	313	3489
			LOGGED	105	15	-	-	-	-	121
									DEAD	46
			RESIDUE	2080	334	223	275	143	313	3414
1220 BCF	3108	DRY	BIOMASS	650	90	26	277	92	297	1432
3 H BEM	1624		LOGGED	203	35	-	-	-	-	238
%DIF	-47 7		RESIDUE	447	54	26	277	92	297	1194
		GRN	BIOMASS	1609	191	45	542	226	697	3311
			LOGGED	382	61	-	-	-	-	442
									DEAD	100
			RESIDUE	1228	131	45	542	226	697	2969
1220 BCF	2	DRY	BIOMASS	1	0	0	0	0	0	2
4 S BEM	2		LOGGED	0	0	-	-	-	-	0
%DIF	-32 4		RESIDUE	1	0	0	0	0	0	2
		GRN	BIOMASS	2	0	0	1	0	0	4
			LOGGED	0	0	-	-	-	-	0
									DEAD	0
			RESIDUE	2	0	0	1	0	0	4
1220 BCF	243	DRY	BIOMASS	143	16	5	23	5	20	211
5 P1 BEM	275		LOGGED	0	0	-	-	-	-	0
%DIF	13 0		RESIDUE	143	16	5	23	5	20	211
		GRN	BIOMASS	286	41	9	47	10	39	433
			LOGGED	0	0	-	-	-	-	0
									DEAD	11
			RESIDUE	286	41	9	47	10	39	443

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BIOMASS ESTIMATES: REGION 9 COMPARTMENT 003-0 12-APR-83 14 44 50 PAGE 2

	STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
1220 BCF	81	DRY	BIOMASS	31	5	2	8	1	3	50
6 Co BEM	120		LOGGED	0	0	-	-	-	-	0
%DIF	47 6		RESIDUE	31	5	2	8	1	3	50
		GRN	BIOMASS	63	12	4	14	1	5	99
			LOGGED	0	0	-	-	-	-	0
									DEAD	1
			RESIDUE	63	12	4	14	1	5	100
1220 BCF	460	DRY	BIOMASS	196	27	24	38	7	12	306
7 D BEM	452		LOGGED	0	0	-	-	-	-	0
%DIF	-1 6		RESIDUE	196	27	24	38	7	12	306
		GRN	BIOMASS	373	52	43	72	17	30	587
			LOGGED	0	0	-	-	-	-	0
									DEAD	9
			RESIDUE	373	52	43	72	17	30	597
1220 BCF	285	DRY	BIOMASS	119	16	13	26	5	9	187
9 Mb BEM	279		LOGGED	0	0	-	-	-	-	0
%DIF	-2 4		RESIDUE	119	16	13	26	5	9	187
		GRN	BIOMASS	227	32	23	49	11	22	365
			LOGGED	0	0	-	-	-	-	0
									DEAD	5
			RESIDUE	227	32	23	49	11	22	370
1220 BCF	1292	DRY	BIOMASS	630	92	19	109	37	62	949
9 Bi BEM	1225		LOGGED	0	0	-	-	-	-	0
%DIF	-5 1		RESIDUE	630	92	19	109	37	62	949
		GRN	BIOMASS	1020	176	34	178	69	107	1584
			LOGGED	0	0	-	-	-	-	0
									DEAD	11
			RESIDUE	1020	176	34	178	69	107	1595
1220 BCF	52263	DRY	BIOMASS	21581	3610	1799	3774	1342	4127	36233
STRAT BEM	46931		LOGGED	4704	745	-	-	-	-	5449
TOTAL %DIF	-10.2		RESIDUE	16877	2865	1799	3774	1342	4127	30783
		GRN	BIOMASS	43011	8080	3083	7578	3095	9480	74327
			LOGGED	9754	1571	-	-	-	-	11325
									DEAD	906
			RESIDUE	33257	6509	3083	7578	3095	9480	63908

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BIOMASS ESTIMATES REGION 9 COMPARTMENT 003-0

	STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
19951	BCF 22216	DRY	BIOMASS	11550	689	233	418	81	484	13454
4 Cy	BEM 26600		LOGGED	0	0	-	-	-	-	0
	%DIF 19 7		RESIDUE	11550	689	233	418	81	484	13454
		GRN	BIOMASS	17591	1291	394	671	133	817	20897
			LOGGED	0	0	-	-	-	-	0
									DEAD	95
			RESIDUE	17591	1291	394	671	133	817	20992
19951	BCF 573	DRY	BIOMASS	220	20	10	12	7	11	280
5 Pw	BEM 546		LOGGED	0	0	-	-	-	-	0
	%DIF -4 6		RESIDUE	220	20	10	12	7	11	280
		GRN	BIOMASS	399	51	14	22	14	22	522
			LOGGED	0	0	-	-	-	-	0
									DEAD	4
			RESIDUE	399	51	14	22	14	22	526
19951	BCF 628488	DRY	BIOMASS	264044	22390	5438	6780	3074	9265	310990
STRAT	BEM 643068		LOGGED	53597	4488	-	-	-	-	58085
TOTAL	%DIF 2 3		RESIDUE	210447	17902	5438	6780	3074	9265	252906
		GRN	BIOMASS	459742	45260	8573	11786	5609	16717	547687
			LOGGED	89619	8088	-	-	-	-	97707
									DEAD	1311
			RESIDUE	370123	37173	8573	11786	5609	16717	451291
19961	BCF 652	DRY	BIOMASS	193	25	7	11	2	12	250
1 C	BEM 602		LOGGED	81	11	-	-	-	-	92
	%DIF -7 6		RESIDUE	112	15	7	11	2	12	158
		GRN	BIOMASS	343	51	14	22	5	32	466
			LOGGED	144	21	-	-	-	-	165
									DEAD	9
			RESIDUE	199	30	14	22	5	32	310
19961	BCF 8690	DRY	BIOMASS	4564	166	34	44	28	43	4879
2 H	BEM 10515		LOGGED	2254	114	-	-	-	-	2368
	%DIF 21 0		RESIDUE	2309	53	34	44	28	43	2511
		GRN	BIOMASS	6407	303	62	77	58	92	6999
			LOGGED	3323	202	-	-	-	-	3525
									DEAD	16
			RESIDUE	3084	101	62	77	58	92	3490

BIOMASS ESTIMATES: REGION 9 COMPARTMENT 003-0 12-APR-83 14:44:50 PAGE 58

	STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
19961	BCF 15943	DRY	BIOMASS	5980	651	166	151	77	223	7248
3 B	BEM 15032		LOGGED	0	0	-	-	-	-	0
	%DIF -5.7		RESIDUE	5980	651	166	151	77	223	7248
		GRN	BIOMASS	11446	1373	231	237	120	351	13759
			LOGGED	0	0	-	-	-	-	0
									DEAD	8
			RESIDUE	11446	1373	231	237	120	351	13766
19961	BCF 25284	DRY	BIOMASS	10736	843	208	206	106	278	12376
STRAT	BEM 26149		LOGGED	2335	124	-	-	-	-	2459
TOTAL	%DIF 3.4		RESIDUE	8401	718	208	206	106	278	9917
		GRN	BIOMASS	18196	1727	307	337	182	474	21223
			LOGGED	3467	223	-	-	-	-	3690
									DEAD	32
			RESIDUE	14729	1504	307	337	182	474	17566
	BCF 3905217	DRY	BIOMASS	1623198	157585	44903	68128	26426	83495	2003734
COMP	BEM 3969350		LOGGED	515918	58087	-	-	-	-	574005
TOTAL	%DIF 1.6		RESIDUE	1107280	99498	44903	68128	26426	83495	1429729
		GRN	BIOMASS	2867144	305778	78371	124430	54349	171503	3601576
			LOGGED	924321	105791	-	-	-	-	1030112
									DEAD	22081
			RESIDUE	1942823	199987	78371	124430	54349	171503	2593545

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** BIOMASS ESTIMATION MODEL ***                  8-APR-83   09 46 12    PAGE     1

                  ---->  REGION 60   COMPARTMENT 156-0                    |
                                                                           v
RUN                 (01) BIOMASS EQUATION SET=2     (1="COMPLEX" 2=DDH 3=LOGS)
PARAMETERS          (02) MODE=2                     (1=INDIVIDUAL  2=BCFS INVENTORY)

STOCK & STAND       (03) VDT SCREEN LEVEL=2         (1=NONE 2=COMPARTMENT 3=STRATA
REPORTING LEVEL     (04) PRINTER LEVEL=5              4=SPECIES 5=DBH)

RECOVERY            (05) TOP DIB= 10.0cm
CRITERIA            (06) STUMP HEIGHT= 30.0cm
                    (07) MINIMUM DBH= 25.0cm

                    (08) SPECIES= B  S

STAND               (09) REGION=60
DESCRIPTION         (10) COMPARTMENT=156-0
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STAND DESCRIPTION REGION 60 COMPARTMENT 156-0 PAGE 2

STRATA	18620	18821	18831	18921	18931	18941	19931
HECTARES	136 8	295 0	19 8	1520 8	2866 8	203 2	1263 8
SPECIES	B	H B Pw	B	H B Pw	B Pw	B	H B Pw

STRATA	28831
HECTARES	0 8
SPECIES	B S Pl

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STAND & STOCK DATA — STEMS PER HECTARE BY DECAY RISK GROUP — 8-APR-83 09 46 12 PAGE 3

		DBH	HGHT	SVOL	GR-1	GR-2	GR-3	VETR	POTL	USLS	TOTAL
18620											
1 B		10 0	7 9	32 5	640 6	403 0	0 0	0 0	6 3	34 3	1084 2
		15 0	10 8	60 7	417 7	243 8	0 0	0 0	6 3	24 9	692 6
		20 0	13 6	76 0	315 1	56 1	0 0	0 0	18 8	12 4	402 3
		25 0	16 6	48 6	87 4	42 1	0 0	0 0	1 6	7 7	138 8
		30 0	19 0	25 5	23 4	15 6	0 0	3 1	0 0	3 1	45 2
		35 0	21 1	14 3	4 7	7 8	0 0	3 1	0 0	1 6	17 2
		40 0	22 8	19 8	7 7	6 2	0 0	3 1	0 0	0 0	17 1
		45 0	24 2	19 2	4 7	3 1	0 0	3 1	0 0	1 6	12 5
		50 0	24 8	24 0	4 7	4 7	0 0	3 1	0 0	0 0	12 5
		55 0	24 9	3 6	0 0	0 0	0 0	1 6	0 0	0 0	1 6
		60 0	26 9	4 6	0 0	1 6	0 0	0 0	0 0	0 0	1 6
1 B	SPECIES TOTAL			328 7	1506 0	783 9	0 0	17 2	32 8	85 5	2425 4
18620											
2 S		10 0	10 3	1 4	31 0	6 2	0 0	0 0	0 0	0 0	37 1
		15 0	13 1	6 4	61 8	0 0	0 0	0 0	0 0	0 0	61 8
		20 0	16 0	1 3	6 2	0 0	0 0	0 0	0 0	0 0	6 2
		25 0	17 3	1 1	0 0	3 1	0 0	0 0	0 0	0 0	3 1
		30 0	23 4	2 1	0 0	3 1	0 0	0 0	0 0	0 0	3 1
		45 0	25 0	4 8	0 0	0 0	0 0	3 1	0 0	0 0	3 1
2 S	SPECIES TOTAL			17 2	99 0	12 4	0 0	3 1	0 0	0 0	114 4
18620											
3 P1		15 0	11 1	0 6	0 0	6 2	0 0	0 0	0 0	0 0	6 2
		20 0	14 9	3 2	6 2	9 3	0 0	0 0	0 0	0 0	15 5
		25 0	17 8	4 2	7 7	0 0	0 0	0 0	0 0	3 1	10 8
		30 0	19 6	13 8	12 4	7 7	0 0	0 0	0 0	3 1	23 2
		35 0	22 1	5 6	3 1	3 1	0 0	0 0	0 0	0 0	6 2
		50 0	23 9	2 9	0 0	1 6	0 0	0 0	0 0	0 0	1 6
3 P1	SPECIES TOTAL			30 3	29 4	27 9	0 0	0 0	0 0	6 2	63 5
18620	STRATUM TOTAL			376 2	1634 4	824 1	0 0	20 3	32 8	91 7	2603 3
18821											
1 B		10 0	7 8	20 4	455 0	177 5	2 5	0 0	5 0	50 0	690 0
		15 0	11 0	41 0	242 5	160 0	0 0	0 0	5 0	52 5	460 0

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STAND & STOCK DATA — STEMS PER HECTARE BY DECAY RISK GROUP — 8-APR-83 09 46 12 PAGE 4

	DBH	HGHT	SVOL	GR-1	GR-2	GR-3	VETR	POTL	USLS	TOTAL
18821										
1 B	20 0	13 9	56 0	90 0	122 5	0 0	0 0	27 5	50 0	290 0
	25 0	16 7	66 5	81 3	43 8	1 3	0 0	17 5	45 0	188 8
	30 0	19 3	60 1	45 0	30 0	0 0	0 0	3 8	26 3	105 0
	35 0	21 5	38 3	16 3	18 8	0 0	0 0	3 8	6 3	45 0
	40 0	23 3	23 7	13 8	5 0	0 0	0 0	0 0	1 3	20 0
	45 0	24 9	9 9	0 0	3 8	0 0	0 0	1 3	1 3	6 3
	50 0	25 4	4 9	0 0	2 5	0 0	0 0	0 0	0 0	2 5
	55 0	24 8	14 3	1 3	2 5	1 3	0 0	1 3	0 0	6 3
1 B	SPECIES TOTAL		335 2	945 0	566 3	5 0	0 0	65 0	232 5	1813 8
18821										
2 S	25 0	19 8	1 5	0 0	2 5	0 0	0 0	0 0	1 3	3 8
	40 0	25 8	3 2	1 3	1 3	0 0	0 0	0 0	0 0	2 5
2 S	SPECIES TOTAL		4 7	1 3	3 8	0 0	0 0	0 0	1 3	6 3
18821										
3 P1	10 0	9 7	0 2	0 0	0 0	0 0	0 0	0 0	5 0	5 0
	15 0	12 3	0 5	0 0	0 0	0 0	0 0	0 0	5 0	5 0
	20 0	15 9	2 3	0 0	5 0	0 0	0 0	0 0	5 0	10 0
	25 0	20 1	2 2	0 0	3 8	0 0	0 0	0 0	1 3	5 0
	30 0	21 8	0 8	0 0	0 0	0 0	0 0	0 0	1 3	1 3
3 P1	SPECIES TOTAL		6 0	0 0	8 8	0 0	0 0	0 0	17 5	26 3
18821	STRATUM TOTAL		345 9	946 3	578 8	5 0	0 0	65 0	251 3	1846 3
18831										
1 H	10 0	6 1	0 8	28 8	7 6	0 0	0 0	0 0	0 0	36 4
	15 0	8 9	0 6	7 3	1 9	0 0	0 0	0 0	0 0	9 2
	20 0	11 6	0 8	0 9	3 5	0 0	0 0	0 0	0 6	5 1
	25 0	14 9	0 3	0 5	0 3	0 0	0 0	0 0	0 2	1 0
	30 0	17 5	0 6	0 6	0 3	0 0	0 0	0 0	0 2	1 1
	35 0	19 7	0 5	0 2	0 5	0 0	0 0	0 0	0 0	0 6
	40 0	21 5	0 3	0 2	0 2	0 0	0 0	0 0	0 0	0 3
	45 0	23 2	0 2	0 2	0 0	0 0	0 0	0 0	0 0	0 2
	50 0	24 7	0 3	0 0	0 2	0 0	0 0	0 0	0 0	0 2
1 H	SPECIES TOTAL		4 4	38 7	14 4	0 0	0 0	0 0	1 0	54 0

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STAND & STOCK DATA. STEMS PER HECTARE BY DECAY RISK GROUP 8-APR-83 09 46 12 PAGE 11

		DBH	HGHT	SVOL	GR-1	GR-2	GR-3	VETR	POTL	USLS	TOTAL
19931											
2 B		15 0	11 0	13 5	107 5	41 4	0 0	0 0	0 0	2 8	151 7
		20 0	14 2	23 7	69 1	23 5	6 9	0 0	0 0	20 6	120 1
		25 0	17 1	20 1	37 1	11 1	1 4	0 0	0 7	5 5	55 8
		30 0	19 8	43 3	38 5	19 3	5 5	0 0	1 4	8 9	73 6
		35 0	22 1	43 4	28 2	11 1	3 5	0 0	0 0	6 9	49 6
		40 0	24 0	68 0	30 3	8 9	7 6	0 0	0 7	8 3	55 8
		45 0	25 7	71 7	22 7	9 6	1 4	0 0	1 4	8 9	44 0
		50 0	27 0	54 5	12 4	6 2	2 8	0 0	0 0	4 8	26 1
		55 0	28 1	42 8	8 9	3 4	2 1	0 0	0 0	2 1	16 5
		60 0	29 5	30 8	4 1	3 4	0 0	0 0	0 0	2 1	9 6
		65 0	30 3	15 8	2 8	1 4	0 0	0 0	0 0	0 0	4 1
		70 0	30 6	9 1	0 0	1 4	0 0	0 0	0 0	0 7	2 1
		75 0	31 5	10 8	0 7	0 0	0 0	0 0	0 0	1 4	2 1
		80 0	32 6	4 2	0 7	0 0	0 0	0 0	0 0	0 0	0 7
		85 0	30 7	4 4	0 7	0 0	0 0	0 0	0 0	0 0	0 7
		95 0	30 9	5 5	0 0	0 0	0 7	0 0	0 0	0 0	0 7
2 B	SPECIES TOTAL			466 4	493 3	175 1	31 7	0 0	4 2	72 9	777 1
19931											
3 Pw		35 0	17 1	0 5	0 0	0 7	0 0	0 0	0 0	0 0	0 7
		55 0	22 9	1 5	0 0	0 7	0 0	0 0	0 0	0 0	0 7
3 Pw	SPECIES TOTAL			1 9	0 0	1 4	0 0	0 0	0 0	0 0	1 4
19931	STRATUM TOTAL			707 1	726 1	343 8	35 8	0 0	4 2	79 8	1189 7
28831											
1 B		10 0	8 1	2 4	63 3	13 8	0 0	0 0	0 0	1 1	78 2
		15 0	11 5	2 5	21 3	4 4	0 0	0 0	0 0	1 1	26 8
		20 0	14 6	3 1	8 7	5 5	0 0	0 0	0 0	1 1	15 3
		25 0	17 7	2 4	3 9	1 3	0 0	0 0	0 2	1 0	6 5
		30 0	20 3	2 4	1 8	1 3	0 0	0 0	0 3	0 6	3 9
		35 0	22 6	1 6	1 1	0 6	0 0	0 0	0 0	0 1	1 8
		40 0	24 4	1 1	0 4	0 2	0 0	0 0	0 2	0 0	0 9
		45 0	26 1	0 4	0 0	0 1	0 0	0 0	0 1	0 0	0 2
		55 0	28 4	0 9	0 2	0 0	0 1	0 0	0 0	0 0	0 3
1 B	SPECIES TOTAL			16 7	100 8	27 2	0 1	0 0	0 9	5 0	133 9

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STAND & STOCK DATA STEMS PER HECTARE BY DECAY RISK GROUP

	DBH	HGHT	SVOL	GR-1	GR-2	GR-3	VETR	POTL	USLS	TOTAL
28831										
2 S	10 0	10 3	3 6	73 2	18 0	0 0	0 0	0 4	1 9	93 6
	15 0	14 2	5 0	33 5	8 7	0 0	0 0	0 4	1 3	43 9
	20 0	17 8	5 3	16 3	5 5	0 0	0 0	0 0	0 2	22 1
	25 0	21 2	6 1	9 9	3 0	0 0	0 0	0 4	0 7	13 9
	30 0	24 0	4 7	5 4	1 2	0 0	0 0	0 1	0 1	6 7
	35 0	26 4	3 8	2 6	1 1	0 0	0 0	0 0	0 1	3 8
	40 0	28 4	2 3	1 0	0 6	0 0	0 0	0 0	0 0	1 6
	45 0	30 1	2 5	0 7	0 5	0 0	0 0	0 0	0 1	1 4
	50 0	31 9	0 8	0 1	0 2	0 0	0 0	0 0	0 0	0 3
	55 0	32 9	0 9	0 2	0 1	0 0	0 0	0 0	0 0	0 3
	60 0	33 7	0 4	0 0	0 1	0 0	0 0	0 0	0 0	0 1
2 S	SPECIES TOTAL		35 4	142 9	39 0	0 0	0 0	1 4	4 4	187 7
28831										
3 P1	10 0	11 1	3 6	13 5	28 8	0 0	0 0	10 5	31 0	83 8
	15 0	15 1	24 2	34 9	86 0	0 0	0 0	17 8	53 6	192 2
	20 0	18 5	72 6	83 6	142 4	0 0	0 0	16 7	29 6	272 2
	25 0	22 0	112 4	83 3	130 3	0 2	0 0	4 4	13 3	231 5
	30 0	24 2	111 5	56 2	85 7	0 5	0 0	1 5	4 2	148 2
	35 0	25 7	66 1	20 0	39 0	0 0	0 0	0 3	2 8	62 1
	40 0	27 0	23 6	6 2	9 9	0 0	0 0	0 1	0 2	16 4
	45 0	28 3	5 3	0 9	1 8	0 0	0 0	0 0	0 2	2 8
	50 0	29 0	2 8	0 3	0 9	0 0	0 0	0 0	0 0	1 2
	55 0	30 5	0 5	0 0	0 2	0 0	0 0	0 0	0 0	0 2
3 P1	SPECIES TOTAL		422 7	298 7	525 0	0 8	0 0	51 3	134 9	1010 7
28831										
4 A	10 0	11 9	0 0	0 5	0 3	0 0	0 0	0 0	0 0	0 8
	15 0	15 4	0 0	0 0	0 2	0 0	0 0	0 0	0 0	0 2
	20 0	18 3	0 0	0 0	0 2	0 0	0 0	0 0	0 0	0 2
	25 0	20 3	0 2	0 1	0 1	0 0	0 0	0 0	0 0	0 5
4 A	SPECIES TOTAL		0 3	0 6	1 1	0 0	0 0	0 0	0 0	1 7
28831	STRATUM TOTAL		475 0	543 0	592 2	0 9	0 0	53 6	144 2	1333 9
	COMPARTMENT TOTAL		4566 5	6810 3	3592 2	59 2	20 3	205 1	1303 2	11990 0

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	STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
18620 BCF	44964	DRY	BIOMASS	16720	2399	432	3008	1031	4943	28533
1 B BEM	43176		LOGGED	7176	933	-	-	-	-	8109
%DIF	-4 0		RESIDUE	9544	1466	432	3008	1031	4943	20424
		GRN	BIOMASS	40624	5207	876	5887	2157	10295	65046
			LOGGED	16304	1980	-	-	-	-	18284
									DEAD	403
			RESIDUE	24320	3227	876	5887	2157	10295	47164
18620 BCF	2348	DRY	BIOMASS	811	110	51	179	76	262	1488
2 S BEM	2057		LOGGED	381	43	-	-	-	-	424
%DIF	-12 4		RESIDUE	430	67	51	179	76	262	1064
		GRN	BIOMASS	1807	251	88	332	152	538	3169
			LOGGED	824	97	-	-	-	-	921
									DEAD	28
			RESIDUE	983	154	88	332	152	538	2276
18620 BCF	4146	DRY	BIOMASS	1823	140	46	142	31	97	2279
3 P1 BEM	4176		LOGGED	0	0	-	-	-	-	0
%DIF	0 7		RESIDUE	1823	140	46	142	31	97	2279
		GRN	BIOMASS	3187	289	87	258	60	184	4065
			LOGGED	0	0	-	-	-	-	0
									DEAD	49
			RESIDUE	3187	289	87	258	60	184	4115
19620 BCF	51458	DRY	BIOMASS	19354	2648	529	3329	1138	5302	32300
STRAT BEM	49409		LOGGED	7558	975	-	-	-	-	8533
TOTAL %DIF	-4 0		RESIDUE	11797	1673	529	3329	1138	5302	23767
		GRN	BIOMASS	45619	5748	1051	6477	2369	11017	72280
			LOGGED	17128	2077	-	-	-	-	19205
									DEAD	480
			RESIDUE	28491	3671	1051	6477	2369	11017	53555
18821 BCF	98891	DRY	BIOMASS	36866	5122	1128	5849	2055	9787	60808
1 B BEM	95199		LOGGED	13197	1720	-	-	-	-	14916
%DIF	-3 7		RESIDUE	23670	3402	1128	5849	2055	9787	45892
		GRN	BIOMASS	87618	11041	2262	11515	4261	20251	136947
			LOGGED	30036	3653	-	-	-	-	33689
									DEAD	723
			RESIDUE	57582	7388	2262	11515	4261	20251	103981

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	STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
18821 BCF	1393	DRY	BIOMASS	516	58	30	59	26	103	792
2 S BEM	1384		LOGGED	394	44	-	-	-	-	438
%DIF	-0 7		RESIDUE	123	14	30	59	26	103	354
		GRN	BIOMASS	1117	133	52	109	53	209	1672
			LOGGED	851	101	-	-	-	-	951
									DEAD	10
			RESIDUE	266	32	52	109	53	209	731
18821 BCF	1763	DRY	BIOMASS	819	70	22	82	18	63	1074
3 P1 BEM	1791		LOGGED	0	0	-	-	-	-	0
%DIF	1 6		RESIDUE	819	70	22	82	18	63	1074
		GRN	BIOMASS	1489	159	41	157	35	121	2003
			LOGGED	0	0	-	-	-	-	0
									DEAD	33
			RESIDUE	1489	159	41	157	35	121	2035
18821 BCF	102047	DRY	BIOMASS	38202	5250	1180	5990	2099	9953	62674
STRAT BEM	98374		LOGGED	13590	1764	-	-	-	-	15354
TOTAL %DIF	-3 6		RESIDUE	24611	3486	1180	5990	2099	9953	47320
		GRN	BIOMASS	90223	11333	2356	11781	4348	20581	140622
			LOGGED	30887	3754	-	-	-	-	34641
									DEAD	766
			RESIDUE	59336	7579	2356	11781	4348	20581	106747
19831 BCF	88	DRY	BIOMASS	39	7	3	10	5	10	73
1 H BEM	88		LOGGED	0	0	-	-	-	-	0
%DIF	0 5		RESIDUE	39	7	3	10	5	10	73
		GRN	BIOMASS	80	16	4	18	11	21	150
			LOGGED	0	0	-	-	-	-	0
									DEAD	4
			RESIDUE	80	16	4	18	11	21	154
19831 BCF	9567	DRY	BIOMASS	3720	488	144	458	170	800	5780
2 B BEM	9606		LOGGED	1727	222	-	-	-	-	1949
%DIF	0 4		RESIDUE	1993	266	144	458	170	800	3831
		GRN	BIOMASS	8510	1040	284	914	346	1629	12724
			LOGGED	3896	470	-	-	-	-	4366
									DEAD	45
			RESIDUE	4614	569	284	914	346	1629	8403

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BIOMASS ESTIMATES REGION 60 COMPARTMENT 156-0

	STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
19931	BCF 589407	DRY	BIOMASS	230499	30007	9175	27140	10222	47816	354859
2 B	BEM 595228		LOGGED	114305	14673	-	-	-	-	128978
	%DIF 1.0		RESIDUE	116195	15334	9175	27140	10222	47816	225881
		GRN	BIOMASS	524290	63730	18132	54368	20685	97147	778352
			LOGGED	257574	31058	-	-	-	-	288633
									DEAD	2541
			RESIDUE	266715	32672	18132	54368	20685	97147	492260
19931	BCF 2421	DRY	BIOMASS	951	90	50	66	32	60	1251
3 Pw	BEM 2378		LOGGED	0	0	-	-	-	-	0
	%DIF -1.8		RESIDUE	951	90	50	66	32	60	1251
		GRN	BIOMASS	1765	231	74	123	66	129	2388
			LOGGED	0	0	-	-	-	-	0
									DEAD	21
			RESIDUE	1765	231	74	123	66	129	2409
19931	BCF 893703	DRY	BIOMASS	351936	46843	15328	35150	14845	56075	520077
STRAT	BEM 871065		LOGGED	114305	14673	-	-	-	-	128978
TOTAL	%DIF -2.5		RESIDUE	237532	32169	15328	35150	14845	56075	391099
		GRN	BIOMASS	766660	93046	29598	68824	30643	115081	1103852
			LOGGED	257574	31058	-	-	-	-	288633
									DEAD	5153
			RESIDUE	509085	61988	29598	68824	30643	115081	820372
28831	BCF 14	DRY	BIOMASS	5	1	0	1	0	2	9
1 B	BEM 13		LOGGED	2	0	-	-	-	-	2
	%DIF -4.1		RESIDUE	3	1	0	1	0	2	7
		GRN	BIOMASS	12	2	0	2	1	3	20
			LOGGED	4	0	-	-	-	-	4
									DEAD	0
			RESIDUE	9	1	0	2	1	3	16
28831	BCF 29	DRY	BIOMASS	10	1	1	2	1	3	18
2 S	BEM 26		LOGGED	5	1	-	-	-	-	6
	%DIF -9.8		RESIDUE	5	1	1	2	1	3	12
		GRN	BIOMASS	22	3	1	4	2	6	37
			LOGGED	12	1	-	-	-	-	13
									DEAD	0
			RESIDUE	11	2	1	4	2	6	25

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BIOMASS ESTIMATES REGION 60 COMPARTMENT 156-0

	STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
28831	BCF 342	DRY	BIOMASS	148	12	4	12	3	8	186
3 P1	BEM 335		LOGGED	0	0	-	-	-	-	0
	%DIF -1 9		RESIDUE	148	12	4	12	3	8	186
		GRN	BIOMASS	260	24	7	22	5	16	334
			LOGGED	0	0	-	-	-	-	0
									DEAD	4
			RESIDUE	260	24	7	22	5	16	339
28831	BCF 0	DRY	BIOMASS	0	0	0	0	0	0	0
4 A	BEM 0		LOGGED	0	0	-	-	-	-	0
	%DIF 0 8		RESIDUE	0	0	0	0	0	0	0
		GRN	BIOMASS	0	0	0	0	0	0	0
			LOGGED	0	0	-	-	-	-	0
									DEAD	0
			RESIDUE	0	0	0	0	0	0	0
29831	BCF 384	DRY	BIOMASS	163	14	5	15	4	13	212
STRAT	BEM 374		LOGGED	7	1	-	-	-	-	8
TOTAL	%DIF -2 6		RESIDUE	156	13	5	15	4	13	204
		GRN	BIOMASS	294	29	8	28	7	25	392
			LOGGED	15	2	-	-	-	-	17
									DEAD	5
			RESIDUE	279	27	8	28	7	25	379
	BCF 4228761	DRY	BIOMASS	1658537	218243	66994	196420	75957	332981	2549133
COMP	BEM 4238183		LOGGED	674258	86459	-	-	-	-	760717
TOTAL	%DIF 0 2		RESIDUE	984279	131784	66994	196420	75957	332981	1788416
		GRN	BIOMASS	3737434	458519	130828	389751	155066	679789	5551389
			LOGGED	1519157	183170	-	-	-	-	1702327
									DEAD	22962
			RESIDUE	2218278	275349	130828	389751	155066	679789	3872024

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** BIOMASS ESTIMATION MODEL ***                12-APR-83   15 49 24   PAGE    1

                  ---->  REGION 60   COMPARTMENT 156-0                    |
                                                                           v
RUN                (01) BIOMASS EQUATION SET=1     (1="COMPLEX" 2=DDH 3=LOGS)
PARAMETERS         (02) MODE=2                     (1=INDIVIDUAL  2=BCFS INVENTORY)

STOCK & STAND      (03) VDT SCREEN LEVEL=4         (1=NONE 2=COMPARTMENT 3=STRATA
REPORTING LEVEL    (04) PRINTER LEVEL=4              4=SPECIES 5=DBH)

RECOVERY           (05) TOP DIB= 10.0cm
CRITERIA           (06) STUMP HEIGHT= 30.0cm
                   (07) MINIMUM DBH= 25.0cm

                   (08) SPECIES= H  B

STAND              (09) REGION=60
DESCRIPTION        (10) COMPARTMENT=156-0
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STAND DESCRIPTION: REGION 60 COMPARTMENT 156-0

STRATA	18620	18821	18831	18921	18931	18941	19931
HECTARES	136.8	295.0	19.8	1520.8	2866.8	203.2	1263.8
SPECIES	B	H B Pw	B	H B Pw	B Pw	B	H B Pw

STRATA	28831	
HECTARES	0.8	
SPECIES	B S Pl	

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STAND & STOCK DATA — STEMS PER HECTARE BY DECAY RISK GROUP

		DBH HGHT	SVOL	GR-1	GR-2	GR-3	VETR	POTL	USLS	TOTAL
18620										
1 B	SPECIES TOTAL		328 7	1506 0	783 9	0 0	17 2	32 8	85 5	2425 4
2 S	SPECIES TOTAL		17 2	99 0	12 4	0 0	3 1	0 0	0 0	114 4
3 Pl	SPECIES TOTAL		30 3	29 4	27 9	0 0	0 0	0 0	6 2	63 5
18620	STRATUM TOTAL		376 2	1634 4	824 1	0 0	20 3	32 8	91 7	2603 3
18821										
1 B	SPECIES TOTAL		335 2	945 0	566 3	5 0	0 0	65 0	232 5	1813 8
2 S	SPECIES TOTAL		4 7	1 3	3 8	0 0	0 0	0 0	1 3	6 3
3 Pl	SPECIES TOTAL		6 0	0 0	8 8	0 0	0 0	0 0	17 5	26 3
18821	STRATUM TOTAL		345 9	946 3	578 8	5 0	0 0	65 0	251 3	1846 3
18831										
1 H	SPECIES TOTAL		4 4	38 7	14 4	0 0	0 0	0 0	1 0	54 0
2 B	SPECIES TOTAL		482 5	587 1	262 1	5 4	0 0	20 2	173 5	1048 3
3 S	SPECIES TOTAL		47 6	29 0	18 7	0 0	0 0	0 8	6 0	54 5
4 Pw	SPECIES TOTAL		1 9	0 3	2 7	0 0	0 0	0 0	2 1	5 1
5 Pl	SPECIES TOTAL		105 4	31 9	53 0	0 0	0 0	2 7	16 1	103 7
18831	STRATUM TOTAL		641 7	687 0	350 9	5 4	0 0	23 7	198 6	1265 5
18921										
1 H	SPECIES TOTAL		0 5	10 3	0 0	0 0	0 0	0 0	0 0	10 3

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STAND & STOCK DATA STEMS PER HECTARE BY DECAY RISK GROUP

	DBH HGHT	SVOL	GR-1	GR-2	GR-3	VETR	POTL	USLS	TOTAL
18921									
2 B	SPECIES TOTAL	588.1	1078.5	431.7	0.7	0 0	7 6	291.9	1810.5
3 S	SPECIES TOTAL	2 2	2 1	2 1	0 0	0 0	0 0	0 0	4 1
4 Pw	SPECIES TOTAL	4 3	0 7	1.4	0.0	0 0	0 0	0.0	2.1
18921	STRATUM TOTAL	595 2	1091 5	435 2	0 7	0 0	7 6	291.9	1827 0
18931									
1 H	SPECIES TOTAL	11 9	147 2	48 4	0 0	0 0	0 0	3 3	198 8
2 B	SPECIES TOTAL	713 8	612 5	221 3	7 9	0 0	3 3	168 6	1013.6
3 S	SPECIES TOTAL	4 8	1 1	0 4	0 0	0 0	0 0	0 7	2 2
4 Pw	SPECIES TOTAL	9 8	0 7	4 4	0 0	0 0	0 0	0 4	5 4
5 Pl	SPECIES TOTAL	0 7	0 4	0 4	0 0	0 0	0 0	0 0	0 7
18931	STRATUM TOTAL	741 0	761 8	274 8	7 9	0 0	3 3	172 9	1220 8
18941									
1 B	SPECIES TOTAL	608.5	403 7	157 9	3 1	0 0	14 8	62.6	642 1
2 S	SPECIES TOTAL	38 1	14 3	15 6	0.4	0 0	0.0	5 0	35.3
3 Pl	SPECIES TOTAL	37 8	2 1	18 8	0 0	0 0	0 0	5.2	26.1
18941	STRATUM TOTAL	684 4	420 1	192 2	3 5	0 0	14 8	72.8	703 4
19931									
1 H	SPECIES TOTAL	238 9	232 9	167.3	4.1	0 0	0 0	6.9	411 2

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STAND & STOCK DATA STEMS PER HECTARE BY DECAY RISK GROUP

	DBH HGHT	SVOL	GR-1	GR-2	GR-3	VETR	POTL	USLS	TOTAL
19931									
2 B	SPECIES TOTAL	466 4	493 3	175 1	31 7	0 0	4 2	72 9	777 1
3 Pw	SPECIES TOTAL	1 9	0 0	1 4	0 0	0 0	0 0	0 0	1 4
19931	STRATUM TOTAL	707 1	726 1	343 8	35 8	0 0	4 2	79 8	1189 7
28831									
1 B	SPECIES TOTAL	16 7	100 8	27 2	0 1	0 0	0 9	5 0	133 9
2 S	SPECIES TOTAL	35 4	142 9	39 0	0 0	0 0	1 4	4 4	187 7
3 Pl	SPECIES TOTAL	422 7	298 7	525 0	0 8	0 0	51 3	134 9	1010 7
4 A	SPECIES TOTAL	0 3	0 6	1 1	0 0	0 0	0 0	0 0	1 7
28831	STRATUM TOTAL	475 0	543 0	592 2	0 9	0 0	53 6	144 2	1333 9
COMPARTMENT TOTAL		4566 5	6810 3	3592 0	59 2	20 3	205 1	1303 2	11990 0

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	STEM VOLUME (CUBIC M)				TONNES						
					STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
18620	BCF	44964	DRY	BIOMASS	15207	2259	498	3079	1048	5079	27169.
1 B	BEM	39378		LOGGED	6321	852	-	-	-	-	7173
	%DIF	-12 4		RESIDUE	8886	1406	498	3079	1048	5079	19996
			GRN	BIOMASS	38039	4899	1096	6019	2194	10574	62821
				LOGGED	14871	1809	-	-	-	-	16680
										DEAD	417
				RESIDUE	23168	3090	1096	6019	2194	10574	46558
18620	BCF	2348	DRY	BIOMASS	897	115	27	139	60	176	1415
2 S	BEM	2290		LOGGED	427	44	-	-	-	-	471
	%DIF	-2 5		RESIDUE	469	71	27	139	60	176	944
			GRN	BIOMASS	1888	263	53	257	124	382	2966
				LOGGED	856	102	-	-	-	-	958
										DEAD	20
				RESIDUE	1032	162	53	257	124	382	2028
18620	BCF	4146	DRY	BIOMASS	2052	165	86	244	54	181	2781
3 P1	BEM	4503		LOGGED	0	0	-	-	-	-	0
	%DIF	8 6		RESIDUE	2052	165	86	244	54	181	2781
			GRN	BIOMASS	3775	388	160	452	101	333	5209
				LOGGED	0	0	-	-	-	-	0
										DEAD	78
				RESIDUE	3775	388	160	452	101	333	5287
18620	BCF	51458	DRY	BIOMASS	18155	2539	611	3462	1162	5435	31365
STRAT	BEM	46170		LOGGED	6748	896	-	-	-	-	7644
TOTAL	%DIF	-10 3		RESIDUE	11408	1643	611	3462	1162	5435	23721
			GRN	BIOMASS	43702	5551	1309	6727	2419	11289	70997
				LOGGED	15727	1911	-	-	-	-	17638
										DEAD	514
				RESIDUE	27975	3640	1309	6727	2419	11289	53873
18821	BCF	98891	DRY	BIOMASS	33363	4814	1198	6075	2114	10225	57790
1 B	BEM	86526		LOGGED	11710	1588	-	-	-	-	13298
	%DIF	-12.5		RESIDUE	21653	3227	1198	6075	2114	10225	44492
			GRN	BIOMASS	81994	10372	2582	11987	4405	21209	132548
				LOGGED	27674	3372	-	-	-	-	31045
										DEAD	766
				RESIDUE	54320	7000	2582	11987	4405	21209	102268

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	STEM VOLUME (CUBIC M)			STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
				TONNES						
18821	BCF 1393	DRY	BIOMASS	591	60	8	19	9	31	718
2 S	BEM 1596		LOGGED	453	45	-	-	-	-	499
	%DIF 14 5		RESIDUE	138	15	8	19	9	31	219
		GRN	BIOMASS	1176	140	14	36	20	64	1450
			LOGGED	894	106	-	-	-	-	1000
									DEAD	3
			RESIDUE	281	34	14	36	20	64	453
18821	BCF 1763	DRY	BIOMASS	880	76	32	107	23	83	1201
3 P1	BEM 1889		LOGGED	0	0	-	-	-	-	0
	%DIF 7 1		RESIDUE	880	76	32	107	23	83	1201
		GRN	BIOMASS	1639	183	60	204	45	157	2287
			LOGGED	0	0	-	-	-	-	0
									DEAD	39
			RESIDUE	1639	183	60	204	45	157	2327
18821	BCF 102047	DRY	BIOMASS	34835	4951	1238	6201	2146	10338	59709
STRAT	BEM 90010		LOGGED	12163	1633	-	-	-	-	13796
TOTAL	%DIF -11 8		RESIDUE	22672	3318	1238	6201	2146	10338	45913
		GRN	BIOMASS	84809	10695	2656	12227	4469	21430	136285
			LOGGED	28568	3478	-	-	-	-	32046
									DEAD	809
			RESIDUE	56241	7217	2656	12227	4469	21430	105048
19831	BCF 88	DRY	BIOMASS	30	5	1	6	2	6	51
1 H	BEM 68		LOGGED	0	0	-	-	-	-	0
	%DIF -22 1		RESIDUE	30	5	1	6	2	6	51
		GRN	BIOMASS	60	9	2	11	6	14	102
			LOGGED	0	0	-	-	-	-	0
									DEAD	2
			RESIDUE	60	9	2	11	6	14	104
18831	BCF 9567	DRY	BIOMASS	3299	433	125	404	149	700	5111
2 B	BEM 8507		LOGGED	1521	195	-	-	-	-	1716
	%DIF -11 1		RESIDUE	1778	238	125	404	149	700	3395
		GRN	BIOMASS	7521	921	248	802	303	1425	11221
			LOGGED	3408	412	-	-	-	-	3819
									DEAD	41
			RESIDUE	4113	509	248	802	303	1425	7442

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	STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
19931	BCF 589407	DRY	BIOMASS	204064	26346	7774	23015	8634	40124	309957
2 B	BEM 525604		LOGGED	100850	12776	-	-	-	-	113626
	%DIF -10 8		RESIDUE	103213	13570	7774	23015	8634	40124	196330
		GRN	BIOMASS	459169	55925	15176	45755	17410	81302	674737
			LOGGED	223911	27022	-	-	-	-	250934
									DEAD	2170
			RESIDUE	235258	28903	15176	45755	17410	81302	425973
19931	BCF 2421	DRY	BIOMASS	909	94	98	133	38	122	1395
3 Pw	BEM 2346		LOGGED	0	0	-	-	-	-	0
	%DIF -3 1		RESIDUE	909	94	98	133	38	122	1395
		GRN	BIOMASS	1861	273	161	261	81	283	2920
			LOGGED	0	0	-	-	-	-	0
									DEAD	39
			RESIDUE	1861	273	161	261	81	283	2959
19931	BCF 893703	DRY	BIOMASS	343763	49542	12880	33791	14919	49929	504823
STRAT	BEM 838542		LOGGED	100850	12776	-	-	-	-	113626
TOTAL	%DIF -6 2		RESIDUE	242913	36766	12880	33791	14919	49929	391197
		GRN	BIOMASS	724287	95362	23683	64406	30079	101101	1038918
			LOGGED	223911	27022	-	-	-	-	250934
									DEAD	6932
			RESIDUE	500376	68340	23683	64406	30079	101101	794916
20831	BCF 14	DRY	BIOMASS	5	1	0	1	0	1	8
1 B	BEM 12		LOGGED	1	0	-	-	-	-	2
	%DIF -11 0		RESIDUE	3	0	0	1	0	1	6
		GRN	BIOMASS	11	1	0	2	1	3	18
			LOGGED	3	0	-	-	-	-	4
									DEAD	0
			RESIDUE	8	1	0	2	1	3	15
20831	BCF 29	DRY	BIOMASS	12	1	0	1	1	1	16
2 S	BEM 31		LOGGED	6	1	-	-	-	-	7
	%DIF 7 4		RESIDUE	5	1	0	1	1	1	9
		GRN	BIOMASS	24	3	0	2	1	3	33
			LOGGED	12	1	-	-	-	-	14
									DEAD	0
			RESIDUE	11	2	0	2	1	3	20

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	STEM VOLUME (CUBIC M)			TONNES STEM	BARK	BR-L	BR-M	BR-S	FOLI	TOTAL
28831	BCF 342	DRY	BIOMASS	154	12	5	14	3	10	198
3 P1	BEM 347		LOGGED	0	0	-	-	-	-	0
	%DIF 1 5		RESIDUE	154	12	5	14	3	10	198
		GRN	BIOMASS	275	26	9	26	6	19	361
			LOGGED	0	0	-	-	-	-	0
									DEAD	5
			RESIDUE	275	26	9	26	6	19	366
28831	BCF 0	DRY	BIOMASS	0	0	0	0	0	0	0
4 A	BEM 0		LOGGED	0	0	-	-	-	-	0
	%DIF 1 1		RESIDUE	0	0	0	0	0	0	0
		GRN	BIOMASS	0	0	0	0	0	0	0
			LOGGED	0	0	-	-	-	-	0
									DEAD	0
			RESIDUE	0	0	0	0	0	0	0
28831	BCF 384	DRY	BIOMASS	171	14	5	16	4	13	223
STRAT	BEM 390		LOGGED	3	1	-	-	-	-	9
TOTAL	%DIF 1 5		RESIDUE	168	13	5	16	4	13	214
		GRN	BIOMASS	310	31	9	30	8	25	413
			LOGGED	16	2	-	-	-	-	18
									DEAD	5
			RESIDUE	294	29	9	30	8	25	400
	BCF 4229761	DRY	BIOMASS	1501616	199228	56838	171279	65747	284105	2278813
COMP.	BEM 3817571		LOGGED	595315	75246	-	-	-	-	670561
TOTAL	%DIF -9 7		RESIDUE	906301	123982	56838	171279	65747	284105	1608252
		GRN	BIOMASS	3332362	414735	109611	336788	133363	578155	4905013
			LOGGED	1321061	159417	-	-	-	-	1480478
									DEAD	21762
			RESIDUE	2011301	255317	109611	336788	133363	578155	3446297